

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Appl. No. : Not Yet Assigned
Filed : Simultaneously Herewith
For : GLASSES FOR FLAT PANEL DISPLAYS

Commissioner of Patents and Trademarks
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Prior to its initial examination, please amend the above-identified application as follows:

IN THE SPECIFICATION:

Please insert before the first line of the specification:

CROSS REFERENCE TO RELATED APPLICATIONS

This is a continuation application of U.S. Application No. 09/443,260, filed on November 22, 1999, which claims the benefit under 35 USC §119(e) of U.S. Provisional Application No. 60/110,220, filed on November 30, 1998, the contents of both of which in their entireties are hereby incorporated by reference.

IN THE CLAIMS

Please amend the claims as follows:

- 1) Amend Claims 1, 5-6, and 18-22.
- 2) Cancel, without prejudice, Claims 4, 7, 17, and 26-29.
- 3) Add Claims 30-43.

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1. (amended) An aluminosilicate glass exhibiting a density less than about 2.45 g/cm^3 and a liquidus viscosity greater than about 200,000 poises, the glass consisting essentially of the following composition as calculated in mol percent on an oxide basis: 65-75 SiO_2 , 7-13 Al_2O_3 , 5-15 B_2O_3 , 0-3 MgO , 5-15 CaO , 0-5 SrO , and essentially free of BaO , wherein the glass has a linear coefficient of thermal expansion (CTE) over the temperature range 0-300°C between $28\text{-}33 \times 10^{-7}/^\circ\text{C}$.

5. (amended) The glass of claim 1, wherein the glass has a strain point greater than about 660°C.

6. (amended) The glass of claim 1, wherein the glass has a melting temperature less than about 1700 °C.

18. (amended) The glass of claim 15, wherein the glass has a strain point greater than about 660°C.

19. (amended) The glass of claim 15, wherein the glass has a melting temperature less than about 1700 °C.

20. (amended) The glass of claim 15, wherein the glass has a liquidus viscosity greater than 400,000 poises.

21. (amended) The glass of claim 15, wherein the glass has a liquidus viscosity greater than about 800,000 poises

22. (amended) In a flat panel display device, the improvement comprising a substrate in accordance with claim 15.

30. An aluminosilicate glass comprising in mol percent on an oxide basis: 65-75 SiO_2 , 7-13 Al_2O_3 , and 5-15 B_2O_3 , wherein:

(a) said glass has a $\text{RO}/\text{Al}_2\text{O}_3$ ratio between 0.9 and 1.2, wherein R represents Mg, Ca, Sr, and Ba;

(b) the glass has a CaO concentration between 5 mol percent and 15 mol percent on an oxide basis; and

(c) the glass has a density less than about 2.45 gram/cm³, a liquidus viscosity greater than about 200,000 poises, and a linear coefficient of thermal expansion over the temperature range from 0°C to 300°C between $28 \times 10^{-7}/^{\circ}\text{C}$ and $33 \times 10^{-7}/^{\circ}\text{C}$.

31. The glass of claim 30 wherein the glass comprises in mol percent on an oxide basis: 67-73 SiO₂, 8-11.5 Al₂O₃, 8-12 B₂O₃, and 5.5-11 CaO.

32. The glass of claim 30, wherein the RO/Al₂O₃ ratio is between 0.92 and 0.96, wherein R represents Mg, Ca, Sr, and Ba.

33. The glass of claim 30, wherein the glass has a strain point greater than about 650°C.

34. The glass of claim 30, wherein the glass has a strain point greater than about 660°C.

35. The glass of claim 30, wherein the glass has a melting temperature less than about 1700°C.

36. The glass of claim 30, wherein the glass exhibits a weight loss of less than 0.5 mg/cm² after immersion in a solution of 1 part 50 wt.% HF and 10 parts 40 wt. % NH₄F for 5 minutes at 30°C.

37. The glass of claim 30, wherein the glass has a liquidus viscosity greater than about 400,000 poises.

38. A glass according to claim 30, wherein the glass has a liquidus viscosity greater than about 600,000 poises.

39. A glass according to claim 30, wherein the glass has a liquidus viscosity greater than about 800,000 poises.

40. A glass according to claim 30, wherein the glass has a density less than about 2.40 gram/cm³.

41. In a flat panel display device, the improvement comprising a substrate comprising the glass of claim 30.

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42. The flat panel display device of claim 41, wherein the substrate has an average surface roughness less than about 0.5 nm.

43. The flat panel display device of claim 41, wherein the substrate has an average internal stress less than about 150 psi.

A copy of Claims 1, 5-6, and 18-22 annotated to show the changes made by this amendment is attached as Exhibit A.

REMARKS

This is a continuation of pending application Serial No. 09/443,260 (the '260 application).

During the prosecution of the '260 application, applicants submitted a Declaration Under 37 CFR §1.132 directed to Example 14 of commonly-assigned U.S. Patent No. 6,060,168 to Jeffrey T. Kohli. Applicants are preparing a supplement to that declaration in support of the claims being pursued in this continuation application and will be submitting that declaration shortly. Also, a terminal disclaimer is being prepared and will be submitted with the supplemental declaration.

Entry of this amendment prior to the calculation of the filing fee for this application is respectfully requested.

Respectfully submitted,

Date: 11/16/01

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Exhibit A

Annotated Copy of Claims 1, 5-6, and 18-22

1. (amended) An aluminosilicate glass exhibiting a density less than about 2.45 g/cm³ and a liquidus viscosity greater than about 200,000 poises, the glass consisting essentially of the following composition as calculated in mol percent on an oxide basis: 65-75 SiO₂, 7-13 Al₂O₃, 5-15 B₂O₃, 0-3 MgO, 5-15 CaO, 0-5 SrO, and essentially free of BaO, wherein the glass has a linear coefficient of thermal expansion (CTE) over the temperature range 0-300°C between 28-33 X 10⁻⁷/°C.

5. (amended) The glass of claim [4] 1, wherein the glass has a strain point greater than about 660°C.

6. (amended) The glass of claim [4] 1, wherein the glass has a melting temperature less than about 1700 °C.

18. (amended) The glass of claim [17] 15, wherein the glass has a strain point greater than about 660°C.

19. (amended) The glass of claim [17] 15, wherein the glass has a melting temperature less than about 1700 °C.

20. (amended) The glass of claim [17] 15, wherein the glass has a liquidus viscosity greater than 400,000 poises.

21. (amended) The glass of claim [17] 15, wherein the glass has a liquidus viscosity greater than about 800,000 poises

22. (amended) In a flat panel display device, the improvement comprising a substrate in accordance with claim [17] 15.